

**REMARKS**

Independent claim 1 has been amended to further clarify the invention and to better distinguish the claimed invention from the prior art. Support is found in Figs. 1, 2a, 2b, 3, 5, 6, 6, 8a, and 8b and pages 6-7 of the Specification. No new matter has been added.

Turning to the art rejections, and considering first the rejection of claims 1-7 under 35 U.S.C. § 102(b) as being anticipated by Culp (U.S. Patent 5,192,197), independent claim 1 requires, in part, "a plurality of individual actuators arranged in a series and located in the chamber and in contact with the fluid, wherein successive actuators in the series are sequentially operated to advance the flow of fluid...wherein each actuator comprises a material that expands in at least one direction and, when activated, changes dimensions and exerts a displacing force on the housed fluid." Culp does not teach the claimed invention.

Culp teaches a pump that operates by the movement of waveplates, which are composed of a series of what Culp characterizes as "dimorphs". According to Culp the dimorphs move by shear deformation caused by polarization due to the application of an electric field. The dimorphs are divided into two body portions (Fig. 1, items 4a,b) which are separated by electrodes (Fig. 1, items 8 and 6a,b). In Culp, the sides of the dimorphs move in position relative to one another when an electrical field causes the translation of one electrode relative to the other. Specifically, the movement of the dimorphs of Culp is caused by the movement of electrode 6b relative to electrode 6a in the present of the electric fields of body portions 4a and 4b. None of the material of the dimorph expands to create a change in the dimensions of the actuator as required by Applicant's claim 1. Thus, Culp fails to teach all the features of independent claim 1, as amended and therefore cannot be said to anticipate or for that matter render obvious claim 1 or claims 2-7 which depend on claim 1.

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Turning to now the rejection of claims 1, 3, 4 and 15 under 35 U.S.C. 102(b) as being anticipated by da Costa (U.S. Patent 6,004,115), independent claim 1, as amended, requires, in part, "a plurality of same sized individual actuators arranged in a series and located in the chamber and in contact with the fluid, wherein successive actuators in the series are sequentially operated to advance the flow of fluid. Da Costa does not disclose this feature. Rather, da Costa teaches a hermetic compressor whereby a gas is compressed from displacement into chambers of successively smaller volumes created by the movement of successively lower volume pistons. Thus, claim 1 cannot be said to be anticipated by da Costa. Moreover, there is no motivation to one having ordinary skill in the art to modify da Costa's compressor, concerned with creating high pressures, in such a way as to disclose Applicant's invention. Da Costa's principle of operation is based on the pistons being of successively smaller volumes to create smaller volumes into which the gas is forced, in order to boost pressure of the gas. Applicant's claims require a plurality of same of similar sized individual actuators arranged in a series. Thus, Applicant's claimed invention is structurally and functionally different from da Costa. Therefore, da Costa also fails to anticipate or for that matter render obvious independent claim 1 or claims 3, 4 and 15 which depend thereon.

The rejection of claims 17 and 22 under 35 U.S.C. 103(a) as being unpatentable over either Culp or da Costa, also is in error. Claims 17 and 21 depend on independent claim 1. As noted *supra*, both Culp and da Costa have basic deficiencies and thus fail to anticipate or render obvious independent claim 1 or any claims dependent thereon. Moreover, no combination of Culp and da Costa would achieve claim 1, or claims 17 and 22 which depend thereon.

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Turning finally to the rejection of claims 19-21 and 23-26 as being unpatentable over either Culp or da Costa in view of Chinn et al. (U.S. Patent 6,685,442), claims 19-21 and 23-26 all are directly or indirectly dependent upon claim 1. The deficiencies of both Culp and da Costa alone or in combination with respect to independent claim 1 are discussed above. Even assuming arguendo that Chinn et al. is as the Examiner states, no combination of either Culp or da Costa with Chinn et al. can render obvious independent claim 1 or any of claims 19-21 and 23-26 that depend thereon.

Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action is respectfully requested. the cost of the added claim fees accompanies this Amendment.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391

Respectfully submitted,

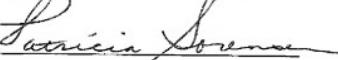


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